Shoda et al. ("Shoda"). Furthermore, claims 2-9 were not rejected over the combination of Sanders and Shoda. On June 18, 2003, Applicants filed a Response to the December 18, 2002, Office Action, and did not amend any of the claims.

In the present Office Action, the Examiner rejects, for the first time, claim 2-9 under 35 U.S.C. § 103(a) over Sanders and Shoda. This rejection constitutes a new ground of rejection, which was not necessitated by any Amendment. Accordingly, the finality of the current Office Action is improper. Specifically, as noted in M.P.E.P. § 706.07(a), issuing a final Office Action is not proper

> where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement...

Clearly, in light of the requirements of M.P.E.P. § 706.07(a), Applicants respectfully request that the finality of the present Office Action be withdrawn.

In light of the issues raised above, Applicants' representative contacted the Examiner on a couple of occasions to discuss withdrawal of the finality of the Office Action. In response, to Applicants' representative's requests, the Examiner suggested that Applicants present the above arguments in a formal response to the Office Action.

II. Preliminary matters

Applicants respectfully request that the Examiner review and accept the original drawings filed on November 9, 2001, and indicate such acceptance to applicants in the next Office communication.

III. Rejection under 35 U.S.C. § 103(a) over Sanders and Shoda

Claims 1-9 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sanders in view of Shoda. Applicants respectfully traverse this rejection.

A. Claim 1

As recited in claim 1, a fade volume computing unit computes an amplifying factor of an input signal to provide an increased volume at a rear or front speaker. Furthermore, the increased volume is equal to a decreased volume at the front or rear speaker when an input signal is attenuated by an attenuating factor. As a result of such amplification and attenuation, the total volume within the vehicle is unchanged when a balancing point is moved from a prescribed position.

On the other hand, Sanders and Shoda (alone or in combination) do not suggest the claimed features above.

For example, Sanders describes that when a vehicle is equipped with front and rear speakers, a fade control is used to apportion the sound volume between the front and rear.

(Background of the Invention; col. 1, lines 17-25). However, Sanders describes that when the fader is changed, the balance of the frequency ranges is often changed, which causes the operator to adjust the bass/treble settings manually upon each fade operation to maintain a consistent sound.

Accordingly, an object of Sanders is to apply software techniques to compensate for the effect of fade change on the perceived frequency response of the vehicle sound system. (Summary of the Invention, col. 1, lines 42-45). As depicted in Figure 3, the base/treble level is on the vertical scale and the fade position is on the horizontal scale. Appropriate tone compensations are implemented by a microprocessor depending on the fade setting. (Column 3, lines 12-68).

Referring to Figures 1 and 2, Sanders describes a control head 10 that includes control knobs 20-26. (Column 2, lines 39-40). The control knobs 20-26 allow the operator to control volume, base, treble, and fade. (Column 2, lines 35-58).

Sanders fails to teach or suggest the claimed fade volume computing unit that computes an amplifying factor such that the total volume within the vehicle is unchanged when a balancing point is moved

The examiner acknowledges the above-noted deficient teachings of Sanders, but alleges that Shoda cures such deficiencies. Applicants respectfully disagree.

Shoda describes a cross fader for editing audio signals from a first bus and a second bus. (Abstract; Figures 1-2). Shoda discloses an explicit definition for the term "cross fader." (Column 1, lines 13-17).

As shown in Figure 4, the fader 121 fades out the audio signal of a program (PGM) channel according to a curve F_{OUT} and fades in the audio signal of a preset channel according to a curve F_{IN}. (Column 1, lines 39-47). The fading-in and fading-out of the respective audio signals is produced by the operation of knob 122 (Figure 3).

However, Shoda primarily relates to the problems associated with the change of lighting assignments (i.e., program and preset modes) by the "cross fader" for a particular channel resulting in errors of operation. (Column 2, lines 3-45).

In view of the above, Shoda describes a lighting arrangement, for example, where red indicates a channel is in program mode and yellow indicates a preset mode. (Column 4, lines 13-19).

The examiner alleges that Figure 2 of Shoda discloses two signals, A bus and B bus, in which a level adjuster 31a is inversely interlocked with the level adjuster 31b. Moreover, the Examiner contends that the level adjuster 31b raises the level of the signal when the level adjuster 31a lowers the level of the signal. In this regard, the Examiner alleges that Sanders and Shoda, in combination, render obvious claim 1.

The Examiner seems to believe that, because the variable resistors are inversely interlocked together in Shoda, that "a total volume within the vehicle is unchanged." However, this is technically inaccurate.

As shown in Figure 5 of U.S.P. 5,046,106 to Liebel et al. ("Liebel"), the resistors VR3 and VR5 are two variable resistors that are a part of the volume circuits for the left and right channels. (Column. 3, 28-41). The usage of variable resistors, inversely interlocked or not inversely interlocked, do not yield an unchanged total volume. (Summary of the Invention, Liebel; see also Background of the Invention, Sanders). As is taught in both Liebel and Sanders, fader control effects volume. Accordingly, the teachings of Shoda are not any more relevant, and perhaps even less so, than the teachings of Sanders, since the operation of cross fading does not include "moving a balancing point from a prescribed position."

Additionally, the fader 31 of Shoda comprises a mixer 31c (whose components are not shown in Figure 2) that receives the signals from level adjuster 31a and level adjuster 31b. The mixer 31c must then combine the respective signals. (Column 5, lines 38-41). However, Shoda fails to teach or suggest that the total volume of the output through terminal 50 is unchanged.

Applicants submit that the Examiner is reading teachings into Shoda, which are in fact, not disclosed. When considering the prior art of record, Figure 4 is clearly an over-simplification of the cross-fading operation. Indeed, in view of the problem addressed by Shoda, it is understandable why the effects of fader controls and volume are not discussed. However, Sanders (and Liebel) describe the effects of fader controls and volume, in that volume loss occurs.

When considering the prior art as a whole, Sanders and Shoda, individually or in combination, fail to teach or suggest all the limitations of the volume controller of claim 1.

Further, the Examiner alleges that "it would have been obvious to one of ordinary skill in the art to use a fader as disclosed by Shoda in a vehicle with a fader to provide fading without changing the overall volume and provide convenience to the user."

The Examiner's reasons to combine these references "to provide fading without changing the overall volume" is a benefit that arises from the claimed invention, apparent only after the invention is known, not a motivation to provide the specific invention claimed.

Applicants respectfully disagree that one skilled in the art would have bee motivated to combine the cross fader of Shoda (shown in Figure 4 and described at column 5, lines 32-41) with the fader of Sanders. The operation performed by the cross fader of Shoda is completely different and distinct from the operation of the fader of Sanders. Instead, as noted above, the Examiner's incorporation of Shoda's fader into the Sanders device stems from impermissible hindsight reasoning.

Notwithstanding, as discussed above, even if, assuming *arguendo*, that one skilled in the art had combined these references, the resulting combination, would not have yielded or rendered obvious the volume controller of claim 1. In particular, the fader of Sanders or the cross fader of Shoda comprise more than simply two variable resistors (interlocked) in order to produce a cross fade (as in Shoda) or the volume control between front and rear speakers (as in Sanders). In either case, volume loss occurs.

For at least these reasons, applicants respectfully request that the rejection of claim 1 be withdrawn.

B. Claim 2

For reasons analogous to those presented above with respect to claim 1, Applicants submit that claim 2 is patentable over the applied prior art.

C. Claim 3

Claim 3 recites a fade volume computing unit that has features that are similar to the features discussed above in conjunction with claim 1. Accordingly, Applicants submit that claim 3 is patentable for similar reasons.

Also, claim 3 states that attenuations, when acoustic waves from the front speaker and the rear speaker are propagated to a prescribed position, are previously recorded. Also, the claim states that, on the basis of these attenuations, the increased and decreased volumes at the front or rear speaker are computed. Since the cited references do not suggest such features (and since the Examiner does not even allege that the references teach such features), Applicants submit that claim 3 is further patentable.

D. Claims 4-9

Since claims 4-9 depend upon claim 1 or 3, such claims are patentable at least by virtue of their dependency.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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